

Serial No. 10/725,132
November 9, 2005
Reply to the Office Action dated August 9, 2005
Page 2 of 9

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended): A resistance welding method for bonding a lead wire and a metal member to each other by resistance welding, comprising the steps of:
pressing the lead wire which is clamped by a first welding electrode so as to be in contact with the metal member;

providing a plurality of second welding electrodes; and
passing currents through the plurality of second welding electrodes in contact with the metal member from the first welding electrode via the lead wire and the metal member; wherein

in the step of passing currents through the plurality of second welding electrodes, each of the plurality of second welding electrodes are biased upward and into contact with the metal member by springs.

Claim 2 (original): The resistance welding method according to Claim 1, further comprising the steps of:

measuring a current flowing through each of the plurality of second welding electrodes; and
determining whether a bonding strength is satisfactory or not on the basis of the measured currents.

Claim 3 (canceled).

Serial No. 10/725,132
November 9, 2005
Reply to the Office Action dated August 9, 2005
Page 3 of 9

Claim 4 (original): The resistance welding method according to Claim 1, wherein the current passed through the plurality of second welding electrodes is provided via a direct-current power source.

Claim 5 (currently amended): A resistance welding apparatus, comprising:
a welding power source;
a first welding electrode for clamping a lead wire; and
a plurality of second welding electrodes; wherein
the first welding electrode and the second welding electrodes are connected to the welding power source, and by passing currents through the second welding electrodes from the first welding electrode via the lead wire and a metal member, the lead wire and the metal member are bonded to each other via resistance welding; and

the resistance welding apparatus further comprises an inspection lead-wire chuck for checking a bonding strength between the lead wire and the metal member by clamping and pulling the lead wire.

Claim 6 (original): The resistance welding apparatus according to Claim 5, further comprising a device for measuring a current flowing through each of the plurality of second welding electrodes.

Claim 7 (canceled).

Claim 8 (original): The resistance welding apparatus according to Claim 5, further comprising springs for biasing the plurality of second welding electrodes upward.

Claim 9 (original): The resistance welding apparatus according to Claim 5, wherein the welding power source is a direct-current power source.

Serial No. 10/725,132
November 9, 2005
Reply to the Office Action dated August 9, 2005
Page 4 of 9

Claim 10 (original): The resistance welding apparatus according to Claim 6, wherein said device for measuring a current flowing through each of the plurality of second welding electrodes includes current sensors.

Claim 11 (original): The resistance welding apparatus according to Claim 6, further comprising a determination unit for computing a difference between the currents flowing through each of the plurality of second welding electrodes.

Claim 12 (original): A method for manufacturing an electronic component, comprising the step of bonding a lead wire to a metal member disposed in a main body of the electronic component by resistance welding; wherein

the lead wire is bonded to the metal member using the resistance welding method set forth in Claim 1.

Claim 13 (original): A method for manufacturing an electronic component, comprising the step of bonding a lead wire to a metal member disposed in a main body of the electronic component by resistance welding; wherein

the lead wire is bonded to the metal member using the resistance welding apparatus set forth in Claim 5.

Claim 14 (new): A resistance welding apparatus, comprising:

a welding power source;
a first welding electrode for clamping a lead wire;
a plurality of second welding electrodes; and
springs for biasing the plurality of second welding electrodes upward;

wherein

Serial No. 10/725,132
November 9, 2005
Reply to the Office Action dated August 9, 2005
Page 5 of 9

the first welding electrode and the second welding electrodes are connected to the welding power source, and by passing currents through the second welding electrodes from the first welding electrode via the lead wire and a metal member, the lead wire and the metal member are bonded to each other via resistance welding.

Claim 15 (new): The resistance welding apparatus according to Claim 14, further comprising a device for measuring a current flowing through each of the plurality of second welding electrodes.

Claim 16 (new): The resistance welding apparatus according to Claim 14, wherein the welding power source is a direct-current power source.

Claim 17 (new): The resistance welding apparatus according to Claim 15, wherein said device for measuring a current flowing through each of the plurality of second welding electrodes includes current sensors.

Claim 18 (new): The resistance welding apparatus according to Claim 15, further comprising a determination unit for computing a difference between the currents flowing through each of the plurality of second welding electrodes.

Claim 19 (new): A method for manufacturing an electronic component, comprising the step of bonding a lead wire to a metal member disposed in a main body of the electronic component by resistance welding; wherein

the lead wire is bonded to the metal member using the resistance welding method set forth in Claim 14.